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Applicant: Nokia Corporation

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NEW CLAIMS 1 to 43

- 10 1. Method of deciding on performing a communication
connection changeover of a subscriber terminal (T1) in a
wireless communication network comprising at least one
access node (AP1, AP2, AP3), wherein said subscriber
terminal is able to communicate with an access node in said
15 wireless communication network on two or more frequency
bands,
said method comprising the steps of:
detecting communication information from said at least
one access node, said communication information comprising
20 information indicating whether the at least one access node
is capable to communicate on two or more frequency bands;
transmitting said communication information from said
at least one access node to said subscriber terminal by
broadcasting said communication information from said at
25 least one access node to said subscriber terminal
incorporated in a beacon packet;
processing the transmitted communication information
and determining a communication connection capability of
the transmitting access node on the basis of the frequency
30 band information; and
using the processing result for a decision on a
communication connection changeover of the subscriber
terminal.
- 35 2. Method according to claim 1, wherein said wireless
communication network is a WLAN, preferably based on an
IEEE 802.11 standard.

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3. Method according to claim 2, wherein said two or more frequency bands comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz.

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4. Method according to any of the preceding claims, wherein said information in said communication information comprise a multiple band indicator related to the transmitting access node.

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5. Method according to any of the preceding claims, wherein said information in said communication information comprise a traffic load indicator related to the frequency bands of the transmitting access node.

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6. Method according to any of the preceding claims, wherein said information in said communication information comprise a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network.

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7. Method according to any of the preceding claims, wherein said information in said communication information comprise a frequency channel indicator for indicating the frequency channel used by the access node at the respective frequency band.

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8. Method according to any of the preceding claims, wherein said processing step further comprises steps of detecting a signal strength indicator on a predetermined frequency band; and

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comparing the detected signal strength indicator with a predefined threshold value, wherein the result of the comparison indicates an estimation of the connection capability of an access node on another frequency band.

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9. Method according to any of the preceding claims, wherein the decision on a communication connection changeover is made by the subscriber terminal.

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10. Method according to any of the preceding claims, wherein a result of the decision on a communication connection changeover of the subscriber terminal is a change of the communication connection from the present frequency band to another frequency band which is common to the subscriber terminal and the access node associated with the subscriber terminal.

11. Method according to any of claims 1 to 9, wherein a result of the decision on a communication connection changeover of the subscriber terminal is a change of the communication connection from the current access node to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the neighboring access node to be associated with the subscriber terminal.

12. Method according to any of the preceding claims, wherein communication information transmitted from two or more access node in the wireless communication network are processed in said processing step.

13. System for deciding on performing a communication connection changeover of a subscriber terminal (T1) in a wireless communication network comprising at least one access node (AP1, AP2, AP3), wherein said subscriber terminal is able to communicate with an access node in said wireless communication network on two or more frequency bands,

said system comprising:

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means for detecting and transmitting communication information from said at least one access node to said subscriber terminal, said communication information comprising information indicating whether the transmitting access node is capable to communicate on two or more frequency bands, wherein said means for detecting and transmitting the communication information of the access node are adapted to incorporate the communication information in a beacon packet broadcasted to said subscriber terminal;

means for processing the transmitted communication information so as to determine a communication connection capability of the transmitting access node on the basis of the frequency band information; and

means for deciding on a communication connection changeover of the subscriber terminal by using the processing result.

14. System according to claim 13, wherein said wireless communication network is a WLAN, preferably based on an IEEE 802.11 standard.

15. System according to claim 14, wherein said two or more frequency bands comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz.

16. System according to any of claims 13 to 15, wherein said information in said communication information comprise a multiple band indicator related to the transmitting access node.

17. System according to any of claims 13 to 16, wherein said information in said communication information comprise a traffic load indicator related to the frequency bands of the transmitting access node.

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18. System according to any of claims 13 to 17, wherein
said information in said communication information comprise
a frequency band coverage indicator related to frequency
5 bands of neighboring access nodes of the transmitting
access node in the wireless communication network.
19. System according to any of claims 13 to 19, wherein
said information in said communication information comprise
10 a frequency channel indicator for indicating the frequency
channel used by the access node at the respective frequency
band.
20. System according to any of claims 13 to 19, further
15 comprising means for detecting a signal strength indicator
on a predetermined frequency band; wherein said means for
processing are adapted to compare the detected signal
strength indicator with a predefined threshold value, the
result of the comparison indicating an estimation of the
20 connection capability of an access node on another
frequency band, and said means for deciding on a
communication connection changeover are adapted use the
result of said comparison.
21. System according to any of claims 13 to 20, wherein the
25 means for deciding on a communication connection changeover
is located in the subscriber terminal.
22. System according to any of claims 13 to 21, wherein the
30 means for deciding on a communication connection changeover
are adapted to decide to change the communication
connection from the present frequency band to another
frequency band which is common to the subscriber terminal
and the access node associated with the subscriber
35 terminal.

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23. System according to any of claims 13 to 21, wherein the means for deciding on a communication connection changeover are adapted to decide to change the communication
- 5 connection from the current access node to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the neighboring access node to be associated with the subscriber terminal.
- 10 24. System according to any of claims 13 to 23, wherein the means for processing the transmitted communication information are adapted to process communication information transmitted from two or more access node in the wireless communication network.
- 15 25. Access node in a wireless communication network, said access node communicating with at least one subscriber terminal wherein said subscriber terminal is able to communicate with the access node on two or more frequency
- 20 bands,
- said access node comprising:
- means for detecting and transmitting communication information to said subscriber terminal, said communication information comprising information indicating whether the
- 25 access node is capable to communicate on two or more frequency bands, wherein said means for detecting and transmitting the communication information are adapted to incorporate the communication information in a beacon packet broadcasted to said subscriber terminal.
- 30 26. Access node according to claim 25, wherein said wireless communication network is a WLAN, preferably based on an IEEE 802.11 standard.

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27. Access node according to claim 26, wherein said two or more frequency bands comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz.

5 28. Access node according to any of claims 25 to 27, wherein said information in said communication information comprise a multiple band indicator related to the access node.

10 29. Access node according to any of claims 25 to 28, wherein said information in said communication information comprise a traffic load indicator related to the frequency bands of the access node.

15 30. Access node according to any of claims 25 to 29, wherein said information in said communication information comprise a frequency band coverage indicator related to frequency bands of neighboring access nodes of the access node in the wireless communication network.

20 31. Access node according to any of claims 25 to 30, wherein said information in said communication information comprise a frequency channel indicator for indicating the frequency channel used by the access node at the respective
25 frequency band.

32. Subscriber terminal communicating in a wireless communication network comprising at least one access node (AP1, AP2, AP3), wherein said subscriber terminal is able
30 to communicate with an access node in said wireless communication network on two or more frequency bands,
said subscriber terminal comprising:
means for receiving communication information transmitted from at least one access node, said
35 communication information comprising information indicating

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whether the transmitting access node is capable to communicate on two or more frequency bands, and being transmitted from said at least one access node to said subscriber terminal by broadcasting said communication information from said at least one access node to said subscriber terminal incorporated in a beacon packet;

5 means for processing the transmitted communication information so as to determine a communication connection capability of the transmitting access node on the basis of
10 the frequency band information; and

means for deciding on a communication connection changeover of the subscriber terminal by using the processing result.

15 33. Subscriber terminal according to claim 32, wherein said wireless communication network is a WLAN, preferably based on an IEEE 802.11 standard.

20 34. Subscriber terminal according to claim 33, wherein said two or more frequency bands comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz.

25 35. Subscriber terminal according to any of claims 32 to 34, wherein said means for receiving the communication information means of the access node are adapted to extract the communication information from a beacon packet broadcasted from the access node.

30 36. Subscriber terminal according to any of claims 32 to 35, wherein said information in said communication information comprise a multiple band indicator related to the transmitting access node.

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37. Subscriber terminal according to any of claims 32 to 36, wherein said information in said communication information comprise a traffic load indicator related to the frequency bands of the transmitting access node.

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38. Subscriber terminal according to any of claims 32 to 37, wherein said information in said communication information comprise a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network.

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39. Subscriber terminal according to any of claims 32 to 38, wherein said information in said communication information comprise a frequency channel indicator for indicating the frequency channel used by the access node at the respective frequency band.

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40. Subscriber terminal according to any of claims 32 to 39, further comprising means for detecting a signal strength indicator on a predetermined frequency band; wherein said means for processing are adapted to compare the detected signal strength indicator with a predefined threshold value, the result of the comparison indicating an estimation of the connection capability of an access node on another frequency band, and said means for deciding on a communication connection changeover are adapted use the result of said comparison.

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41. Subscriber terminal according to any of claims 32 to 40, wherein the means for deciding on a communication connection changeover are adapted to decide to change the communication connection from the present frequency band to another frequency band which is common to the subscriber

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terminal and the access node associated with the subscriber terminal.

42. Subscriber terminal according to any of claims 32 to
5 40, wherein the means for deciding on a communication
connection changeover are adapted to decide to change the
communication connection from the current access node to a
specific frequency band of a neighboring access node which
is common to the subscriber terminal and the neighboring
10 access node to be associated with the subscriber terminal.

43. Subscriber terminal according to any of claims 32 to
42, wherein the means for processing the transmitted
communication information are adapted to process
15 communication information transmitted from two or more
access node in the wireless communication network.

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